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IN THE CLAIMS:

Kindly replace the claims of record with the following full set of claims:

1. (Currently amended) A radio receiver, comprising:

[[-]]   a pulse generator, for generating pulses based on an expected received signal;

[[-]]   a multiplier, for multiplying a received signal by the generated pulses; and

[[-]]   a circuit for receiving the multiplier output, wherein said circuit is for operating in a first mode as a low-pass filter, and for operating in a second mode as an integrator, wherein said circuit operates in the first mode before the generated pulses are synchronized to the received signal and operates in the second mode after the generated pulses are synchronized to the received signal.

2. (original) A receiver as claimed in claim 1, comprising an analog-to-digital converter, for receiving an output from said circuit.

3. (original) A receiver as claimed in claim 1, wherein said circuit includes an analog-to-digital converter.

4. (Currently amended) A radio receiver, comprising:

[[-]]   a pulse generator, for generating pulses based on an expected received signal;

[[-]]   a multiplier, for multiplying a received signal by the generated pulses; and

[[-]]   a circuit for receiving the multiplier output, wherein said circuit is for operating ~~operable~~ in a first mode to act as a low-pass filter, and for operating ~~wherein said circuit is operable~~ in a second mode to act as an integrator , ~~wherein said circuit includes an analog-to-digital converter, and~~ wherein said circuit comprises a sigma-delta analog-to-digital converter having a feedback loop, and an integrator, wherein, in said first mode, said integrator is included in

said feedback loop of said sigma-delta analog-to-digital converter, and, in said second mode, the output of the multiplier is connected to the integrator, and the integrator output is connected to the sigma-delta analog-to-digital converter.

5. (Currently amended) A radio receiver, comprising:

[[-]]   a pulse generator, for generating pulses based on an expected received signal;

[[-]]   a multiplier, for multiplying a received signal by the generated pulses; and

[[-]]   a circuit for receiving the multiplier output, wherein said circuit is for operating ~~operable~~ in a first mode to act as a low-pass filter, and for operating ~~wherein said circuit is operable~~ in a second mode to act as an integrator

means for ~~detecting when the receiver has synchronized to a received pulse sequence, and for~~ controlling said circuit ~~receiver~~ to operate in said first mode before ~~it has~~ the receiver is synchronized to [[a]] the received signal ~~pulse sequence~~, and to operate in the second mode when ~~it has~~ the receiver is synchronized to [[a]] the received signal ~~pulse sequence~~.

6. (Currently amended) A method of operating a radio receiver, comprising:

[[-]]   multiplying a received signal by a sequence of generated pulses to produce a multiplication output ;

providing the multiplication output to a circuit, wherein the circuit is for operating in a first mode to act

[[-]]   ~~in a first mode, applying a multiplication output to a~~ as a low-pass filter, and

[[-]]   ~~in a second mode,~~ for operating in a second mode to act as an integrator, wherein the circuit operates in said first mode before the receiver is synchronized to the received signal and operates in the second mode after the receiver is synchronized to the received signal.

7. (Currently amended) A method of operating a radio receiver, comprising:

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[[-]]   multiplying a received signal by a sequence of generated pulses <u>to produce a multiplication output;</u>

           <u>providing the multiplication output to a circuit, wherein the circuit is for operating in a first mode to act as a low pass filter and for operating in a second mode to act as an integrator;</u>

~~in a first mode, applying a multiplication output to a low-pass filter, and~~

~~in a second mode, applying the multiplier output to an integrator~~

[[-]]   detecting when the receiver has synchronized to ~~a received pulse sequence~~ <u>the received signal;</u>

[[-]]   operating the <u>circuit</u> ~~receiver~~ in said first mode before [[it]] <u>the receiver</u> has synchronized to [[a]] <u>the received signal</u> ~~received pulse sequence~~, and

[[-]]   operating the <u>circuit</u> ~~receiver~~ in the second mode ~~when it~~ <u>after the receiver</u> has synchronized to [[a]] <u>the</u> received <u>signal</u> ~~pulse sequence~~.

8. (Currently amended) A method as claimed in claim [[6]] <u>7</u>, comprising generating said sequence of pulses in a form corresponding to <u>expected</u> pulses in ~~an expected~~ <u>the</u> received signal.

9. (Currently amended) A method as claimed in claim [[6]] <u>7</u>, <u>wherein the received signal is</u> ~~for receiving~~ an Ultra Wideband radio signal.

10. (Currently amended) A wireless communications system, comprising:

[[-]]   a radio transmitter, for generating and transmitting a radio signal; and

[[-]]   a radio receiver, wherein the radio receiver comprises:

          [[-]] a pulse generator, for generating pulses based on an expected received signal;

          [[-]] a multiplier, for multiplying a received signal by the generated pulses; and

          [[-]] a circuit for receiving the multiplier output, wherein said circuit is for operating in a first mode to act as a low-pass filter, and for operating in a second

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mode to act as an integrator, <u>wherein said circuit operates in said first mode</u> <u>before the receiver is synchronized to the received signal and operates in the</u> <u>second mode after the receiver is synchronized to the received signal.</u>

11. (original) A wireless communications system as claimed in claim 10, wherein said receiver further comprises an analog-to-digital converter, for receiving an output from said circuit.

12. (original) A wireless communications system as claimed in claim 10, wherein said circuit includes an analog-to-digital converter.

13. (Currently amended) A wireless communications system <u>comprising,</u> ~~wherein~~ ~~said circuit comprises~~:

[[-]]   a radio transmitter, for generating and transmitting a radio signal; and

[[-]]   a radio receiver, wherein the radio receiver comprises:

    [[-]] a pulse generator, for generating pulses based on an expected received signal;

    [[-]] a multiplier, for multiplying a received signal by the generated pulses; and

    [[-]] a circuit for receiving the multiplier output, wherein said circuit is for operating in a first mode to act as a low-pass filter, and wherein said circuit is for operating in a second mode to act as an integrator, wherein said circuit includes ~~an analog-to-digital converter~~

    a sigma-delta analog-to-digital converter having a feedback loop, and an integrator, wherein, in said first mode, said integrator is included in said feedback loop of said sigma-delta analog-to-digital converter, and, in said second mode, the output of the multiplier is connected to the integrator, and the integrator output is connected to the sigma-delta analog-to-digital converter.

14. (Currently amended) A wireless communications system[[,]] comprising:

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[[-]]   a radio transmitter, for generating and transmitting a radio signal; and

[[-]]   a radio receiver, wherein the radio receiver comprises:

[[-]] a pulse generator, for generating pulses based on an expected received signal;

[[-]] a multiplier, for multiplying a received signal, <u>comprising a pulse sequence,</u> by the generated pulses; and

[[-]] a circuit for receiving the multiplier output, wherein said circuit is for operating in a first mode to act as a low-pass filter, and wherein said circuit is for operating in a second mode to act as an integrator, wherein said circuit includes an analog-to-digital converter, and

wherein said receiver further comprises means ~~for detecting when the receiver has synchronized to a received pulse sequence, and~~ for controlling said <u>circuit</u> ~~receiver~~ to operate in said first mode before ~~it has~~ <u>the generated pulses are</u> synchronized to [a]] <u>the</u> received pulse sequence, and to operate in the second mode when ~~it has~~ <u>the generated pulses are</u> synchronized to [[a]] <u>the</u> received pulse sequence.